

REMARKS / DISCUSSION OF ISSUES

The present amendment is submitted in response to the Office Action mailed January 1, 2009. Claims 1-10 remain in this application. In view of the remarks to follow, reconsideration and allowance of this application are respectfully requested.

Specification

In the Office Action, the Specification was objected to for certain informalities. In particular, the Specification was objected to for there allegedly being no mention of a “reversible photosensitive material”. Applicants respectfully disagree. Paragraphs 18 and 59, clearly recite a “reversible photosensitive material” and a “photosensitive reversible layer”, respectively. Withdrawal of the objection is respectfully requested.

[0018] According to another embodiment of the invention, the detector and the spatial filter are part of the read-out unit, while the diffractive structure is part of the content carrier. The spatial filter is then made of **a reversible photosensitive material** and is created every time a carrier is inserted into the read-out unit.

[0059] In a further embodiment, the detector and the spatial filter are part of the read out unit, while the diffractive structure is part of the information carrier. The spatial filter is thus created every time an information carrier is inserted into the read out unit. To this end, the spatial filter is made of a **photosensitive reversible layer**, such as for instance an AgCl/CuCl layer, which blackens under strong illumination and gets back to a transmission state in a dark environment. The diffractive structure on the information carrier is strongly illuminated, creating a gray-scale absorption pattern on the spatial filter. Subsequent illumination of the diffractive structure with a weak light source results in a diffraction pattern that is partly transmitted through the spatial filter onto the detector array. By changing parameters such as angle, wavelength, or position of the weak light source, a series of checks can be performed. It is to be noted that the proposed spatial filter returns to its initial transmission state after relatively short time.

Claim Objections

Claim 9 was objected to because it recites the limitation “**a reversible photosensitive material**”. The Office Action states that this terminology is not clear and thus, the Examiner

is considering it as a photosensitive material. As explained above, par. 59 describes what is meant by a reversible photosensitive material. Namely, par. 59 recites in part, "...To this end, the spatial filter is made of a photosensitive reversible layer, such as for instance an AgCl/CuCl layer, which blackens under strong illumination and gets back to a transmission state in a dark environment." As shown, the reversibility aspect pertains to the photosensitive layer blackening under strong illumination and getting back to a transmission state in a dark environment.

Claims 3 and 6 were objected to because they recite the limitation "**a spacer**". The Examiner considers it to be a space between the photopolymers and photosensitive material. Paragraph 29 recites the term "... **spacer 2 for separating the diffractive layer from the spatial filter**". The Examiner correctly considers it to be a space between Photopolymers and photosensitive material.

Rejection Under 35 U.S.C. §101

Claims 1-10 stand rejected under 35 U.S.C. §101 as being allegedly directed to non-statutory subject matter.

As per claim 1, the rejection is understood to be based on the premise that applicant has allegedly provided evidence that applicant intends the "information carrier" to include signals. As such, the claim is drawn to a form of energy. Applicant respectfully disagrees. Page 3, lines 5-11 of the instant specification recites that the information carrier is a device, including an optical disc or a magnetic disk or a smart card. There is no teaching or disclosure that the information carrier includes signals, as alleged in the Office Action.

The present invention aims at proposing a cheap and efficient system for copy protection of an information carrier based on the diffraction principle. The information carrier is, for example, an optical disc, such as a Small Factor Format Optical SFFO disc or a Blu-ray disc, but it will be apparent to a person skilled in the art that the present invention is also applicable to other type of information carrier, such as, for example, magnetic disks or smart cards.

The description that follows in the subsequent paragraph (see below) further supports Applicant's assertion that the information carrier does not include signals. It merely mentions that a spatial filter 3 of the information carrier delivers a filtered optical signal 31 from the speckle pattern. In other words, the information carrier operates on filtered optical signals. This is different from the information carrier including signals, as alleged in the Office Action.

Fig. 1 is a layout of an information carrier in accordance with the invention and Fig. 2 illustrates the operating principle of said information carrier. Such an information carrier comprises a diffractive layer 1 for delivering a speckle pattern 11 when illuminated by a light source 10, a spatial filter 3 for delivering a filtered optical signal 31 from the speckle pattern and a detector array 4 for delivering, when illuminated by said filtered optical signal, an electrical signal, from which a cryptographic key can be generated. It also comprises a spacer 2 for separating the diffractive layer from the spatial filter. This spacer plays a role of propagation medium. Its width is larger than the wavelength of the light source and smaller the width of the diffractive structure. These different structures are here combined in one piece of hardware.

Based on the above remarks, Applicants respectfully submits that claim 1 is directed to statutory subject matter and requests reconsideration and removal of the rejection under 35 U.S.C. § 101.

Rejections under 35 U.S.C. §102(b)

In the Office Action, Claims 5-6 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,461,239 ("Atherton"). Applicant respectfully traverses the rejection.

It is axiomatic that anticipation of a claim under 35 U.S.C. §102(b) can be found only if the prior art reference discloses every element of the claim. See In re King 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986) and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co. 730 F. 2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984).

Claims 5-6 are allowable

The cited portions of Atherton do not anticipate claims 5 and 6 because the cited portions of Atherton do not teach every element of claims 5 and 6. For example, the cited portions of Atherton do not disclose or suggest, *“a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern”*, as recited in claim 5. Instead, the cited portions of Atherton describe a technique used to optically record diffraction bar codes or stored value data in the photosensitive optical memory medium, as described in relation to FIG. 27. The optical memory medium of Atherton includes three layers (270, 271 and 272). A bottom layer 270 that is a reflective diffraction grating, a middle layer 271 that is a photo-sensitive layer for recording a light source such as a laser and a top covering (protective) layer 272. It is respectfully submitted that none of the layers describe a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern. Atherton describes a process for recording diffraction bar codes or stored value data in relation to FIG. 28. See Atherton, col. 36. Atherton teaches that as the memory medium is moved through the recording apparatus, a recording laser is switched on and off to produce pulses of light. This produces a series of parallel opaque and therefore, non-diffractive strips in the photo-sensitive layer 271 or 273. There is no teaching or suggestion of using a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern, as recited in claim 5. As stated above, none of the layers 270, 271 or 272 that make up the photosensitive optical memory medium are directed to a spatial filtering layer.

Thus, the cited portions of Atherton do not disclose or suggest *“a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern”*, as recited in claim 5. Hence claim 5 is allowable.

Claim 6 depends from claim 5, which Applicant has shown to be allowable. Hence the cited portions of Atherton fail to disclose or suggest at least one element of claim 5. Accordingly, claim 6 is also allowable, at least by virtue of its dependence from claim 5.

Rejections under 35 U.S.C. §103(a)

The Office rejects Claims 1-4, 8 and 10 under 35 U.S.C. §103(a) over Atherton in view of W0 00/67257 ("Nagai"). Applicant respectfully traverses the rejection.

The cited portions of Atherton and Nagai, individually or in combination, fail to disclose or suggest the specific combination of claim 1. For example, the cited portions of Atherton fail to disclose or suggest, "*a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern*", as recited in claim 1. Atherton fails to disclose or suggest this element of claim 1 for at least the reasons stated above.

The cited portions of Nagai fail to disclose or suggest, "*a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern*", as recited in claim 1. Instead, Nagai is cited by the Office only for disclosing "from which a cryptographic key is generated."

Thus, the cited portions of Atherton and Nagai, individually or in combination, do not disclose or suggest "*a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern*", as recited in claim 1. Hence claim 1 is allowable.

Claims 2-4 and 8 depend from independent Claim 1 and therefore contain the limitations of Claim 1 and are believed to be in condition for allowance for at least the same reasons given for Claim 1 above. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of Claims 2-4 and 8 is respectfully requested.

Claim 10 depends from independent Claim 9 which recites similar subject matter as Claim 1 and therefore contain the limitations of Claim 1. Therefore, claim 10 is believed to be in condition for allowance at least by virtue of its dependence from Claim 9. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of Claim 10 is respectfully

requested.

Rejection of Claim 7

In the Office Action, Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Atherton in view of Nagi. Applicant respectfully traverses the rejection.

As explained above, the cited portions of Atherton do not disclose or suggest “*a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern*”, as recited in claim 5 from which claim 7 depends. The cited portions of Nagi do not disclose or suggest “*a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern*”. Thus, the cited portions of Atherton and Nagai, individually or in combination, do not disclose or suggest “*a spatial filtering layer including a binary mask made of a photosensitive material, for delivering a filtered optical signal from the speckle pattern*”, as recited in claim 5 from which claim 7 depends. Claim 7 therefore contain the limitations of Claim 5 and is believed to be in condition for allowance for at least the same reasons given for Claim 5 above. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of Claim 7 is respectfully requested.

Rejection of Claim 9

In the Office Action, Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Atherton in view of Nagi. Applicant respectfully traverses the rejection.

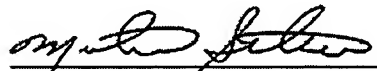
Independent Claim 9 recites similar subject matter as Claim 1 and therefore contain the limitations of Claim 1. Hence, for at least the same reasons given for Claim 1 above, Claim 9 is believed to contain patentable subject matter.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-10 are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Mike Belk, Esq., Intellectual Property Counsel, Philips Electronics North America, at 914-945-6000.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael A. Scaturro", is written over a horizontal line.

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